AUSTRALIAN ACANTHOCEPHALA N° 10

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I. SUMMARY

Specimens of *Pseudoporrorchis bulbocaudatus* (Southwell and McFie), *Pseudoporrorchis centropusi* (Tubangui) and *Gordiorhynchus hylae* (Johnston and Edmonds) have been re-examined and are considered to be synonomous. The species becomes *Pseudoporrorchis hylae* (Johnston). A new species, *Pseudoporrorchis hydromuris*, is described from the water rat, *Hydromys chrysogaster*. *Bolbosoma capitatum* (von Linstow) is recorded from *Globiocephalus melaena* and an acanthocephala from *Canis familiaris dingo* assigned to the genus, *Oncicola*.

II. INTRODUCTION

This paper deals with four acanthocephala, one of which is new.

Parasite	Host
Pseudoporrorchis hylae (Johnston)	*Centropus phasianinus* (Latham) *Podargus strigoides* (Latham)
Pseudoporrorchis hydromuris n. sp.	*Hydromys chrysogaster* (Geoffroy)
Bolbosoma capitatum (von Linstow)	*Globiocephalus melaena* (Traill)
Oncicola sp.	*Canis familiaris dingo* (Blumenbach)

III. DESCRIPTION OF PARASITES

1. **Pseudoporrorchis hylae** (Johnston)

Synonomy

Echinorhynchus hylae Johnston, 1912.
Pseudoporrorchis bulbocaudatus (Southwell and McFie, 1925).
Pseudoporrorchis centropusi (Tubangui, 1933).
Gordiorhynchus hylae (Johnston and Edmonds, 1948).

Discussion

Johnston and Edmonds (1948) identified an acanthocephalan parasite from *Podargus strigoides* as *Gordiorhynchus hylae*. This was an error; it should have been assigned to the genus, *Pseudoporrorchis* Joyeux and Baer, 1935. The authors were misled by the facts (1) that both male and female worms possessed internal pseudosegmentation, and (2) that a small appendix was present near the female genital aperture — both characters of the genus, *Gordiorhynchus* Meyer, 1931. The authors did state that because the receptaculum did not divide the introvert into two parts the conception of the genus would have to be enlarged to include the specimens from *Podargus*. At the time internal pseudosegmentation had not been described for any of the species of *Pseudoporrorchis*.

During 1952 the present author had the opportunity of examining at the British Museum of Natural History some of Southwell and McFie's specimens of *Pseudoporrorchis bulbocaudatus* from *Centropus phasianinus*. At once it was obvious that (1) this species possesses internal pseudosegmentation, a fact not recorded by Southwell and McFie, and (2) *Gordiorhynchus hylae* is synonomous with *P. bulbocaudatus*. Further, through the kindness of the late Professor H.

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Van Cleave, five slides of *Pseudoporrorchis centropusi* (Tubangui, 1933) — all named by Tubangui — were made available for re-examination. A study of these specimens showed that the range of measurements of some organs and structures of *P. centropusi* could be extended, e.g. (1) the length of the male may be as long as 21 mm. and the female 28 mm., (2) the introvert is armed with 26 longitudinal rows of 8-10 hooks per row, and (3) ripe eggs about $50\,\mu \times 23\,\mu$ are present in one female. In addition, internal pseudosegmentation is present and the female aperture is subterminal. This extra information brings Tubangui's specimens from *Centropus viridis* into the synonomy of *P. bulbocaudatus*.

Johnston and Edmonds (1948) identified the parasite from *Podargus strigoides* as the adult of a larval form encysting in the mesentery of a number of Australian frogs (*Hylae* spp. and *Limnodynastes* sp.) and named by Johnston (1912) as *Echinorhynchus hylae*. A further examination of the introverts of a large number of larvae from frogs has confirmed this fact. If the rules of priority in nomenclature are followed, the parasites from *Centropus viridis*, *Centropus phasianinus* and *Podargus strigoides* become *Pseudoporrorchis hylae* (Johnston).

Pseudoporrorchis houdmeri Joyeux and Baer, 1935, the type-species of the genus, from *Centropus sinensis intermedius* is a closely related species. It is armed with 22-24 longitudinal rows each of 11-12 hooks.

The occurrence of internal pseudosegmentation has now been recorded in at least three different genera of the Acanthocephala; (1) *Gordiorhynchus* Meyer, 1931, (2) in the present paper in some species of *Pseudoporrorchis*, and (3) in some species of *Arhythmorhynchus* by Van Cleave (1916, p. 171 and fig. 8).

2. **Pseudoporrorchis hydromuris** n. sp.

figs. 1-4.

Seven female and two male specimens were found in the small intestine of the Australian water rat, *Hydromys chrysogaster*, at Innisfail, Queensland, by Mr. N. C. Elliot (10/10/55) and forwarded for identification by Dr. J. M. Mackerras of the Institute of Medical Science, Queensland.

Description.—The length of the males is 14-17 mm. and of the females 12-19 mm. The trunk is cylindrical but tends to taper slightly towards the anterior and posterior extremities. The maximum width, occurring in the anterior third of the trunk, is 1·1-1·5 mm. in the male and 1·5-2·2 mm. in the female. The introvert is relatively small and almost spherical in shape. It is 0·40-0·46 mm. in diameter and is armed with about 26 longitudinal rows each of 7-8 hooks per row. The second or third hook of each row is largest and possesses a well developed posteriorly directed rooting process. The length of the projecting portion of the largest hook is (40-50) μ and of the rooting process about (60-70) μ. In hooks 5, 6, 7 and 8 the posteriorly directed rooting process progressively decreases in size and an anteriorly directed process appears and progressively increases in size. A similar condition has been described for *Pseudoporrorchis hylae* by Johnston and Edmonds (1948) and for *Pseudoporrorchis teliger* by Van Cleave (1949). There is a tendency for the extremities of the rooting processes of *P. hydromuris* to be swollen slightly. Delicate wing processes, however, like those so carefully described by Van Cleave for *P. teliger* could not be distinguished. There is a short neck about 0·2 mm. long which in all specimens lies within the anterior end of the trunk. The introvert sheath, 1·4 mm. long and 0·35 mm. wide, is double walled and arises just posterior to the last whorl of introvert hooks.

Two ellipsoidal testes, 1·1-1·8 mm. long and 0·6-0·8 mm. wide lie in tandem within the anterior third of the trunk. There are six long tubular cement glands pressed closely together. The posterior extremity of the female is rounded but

not swollen and does not bear an appendix like *P. hylae*. The female aperture is terminal. Ripe eggs are ellipsoidal in shape and their outer shell is thick. They are 68-75 μ long and 32-36 μ wide and do not possess polar prolongations. Longitudinal sections of both male and female reveal that internal pseudosegmentation, like that of *P. hylae*, is present in both sexes.

Systematic Position.—This species is morphologically very close to and was at first thought to be identical with *Pseudoporrorchis hylae* from the birds *Centropus viridis* and *C. phasianinus*. It differs, however, in a number of respects. The introvert of *P. hydromuris* is globose or subspherical and slightly smaller than that of *P. hylae*, which is clavate. The number of hooks in each longitudinal row is less in *P. hydromuris* than *P. hylae*. Further, the posterior extremity of the females of *P. hylae* is swollen into a bulb-like structure which bears a small appendix. This condition does not occur in any of the specimens of *P. hydromuris*.

This is the second record of a mammal as a definitive host of a species of *Pseudoporrorchis*, a genus usually found in birds. Van Cleave (1949) described *P. teliger* from a mongoose, *Herpestes javanicus* and from *Felis minutus javonicus*. *P. teliger* and *P. hydromuris*, although closely related, differ significantly in the number of hooks on the introvert.

Type specimen.—S.A. Museum, Adelaide.

3. **Bolbosoma capitatum** (von Linstow, 1880)

Four female and one male specimen of this parasite were obtained from the intestine of *Globiocephalus melaena* stranded at Prime's Beach, St. Vincent Gulf, S.A., by the late Professor T. H. Johnston on 7/10/44.

Description.—The females are 6·0-8·5 cm. long and 2-3 mm. wide and the male is 3·2 cm. long and about 1·8 mm. wide. The anterior region of the trunk tapers to a fine neck 2-4 mm. long and less than 1 mm. wide. Anteriorly, the neck is surmounted by a prominent swelling or bulb, rather flattened in most specimens and about 1·5-3·0 mm. wide and 1·2-2·1 mm. in length. Arising from the bulb is a small cylindrical introvert which is expanded, and then not quite fully, in one specimen only. It is 0·4 mm. wide at its base and would be about 0·7-0·8 mm. long. It is armed with 14-16 longitudinal rows of hooks. Each row contains probably 8 hooks. The anterior—most hooks are stoutest, largest and most curved; those posteriorly are more pointed and less curved. The bulb itself is covered with stout, densely packed spines, larger than those on the introvert.

The neck and bulb in most specimens is curved ventrally to the long axis of the trunk and the posterior extremity dorsally to some extent. This condition is shown for *B. capitatum* in Meyer's monograph (Meyer, 1932, fig. 66). The posterior region of the trunk of all specimens forms an introvert.

The testes of the male are in the anterior fourth of the trunk just behind the region of the neck. They are ellipsoidal in shape, about 2·5 mm. long and 0·8 mm. wide. Ripe eggs are spindle-shaped and measure (140-162) $\mu \times$ (28-31) μ. They possess long polar prolongations of the middle shell.

Systematic Position.—These specimens are considered to be *B. capitatum* described from *Globiocephalus melas* by von Linstow (1880). The bulb of the South Australian specimens is not quite as extended as those described by von Linstow. The eggs in the female are considerably larger than those described for the species by Porta (Meyer, 1931, p. 90). Otherwise the correspondence with Linstow's details is close. The specimens differ from *B. hamiltoni* Baylis, 1929 in the armature of the introvert where the number of longitudinal rows is 26, nearly double the number in *B. capitatum*.

4. *Oncicola* sp.

fig. 5

Five acanthocephalan specimens, four of which were decapitated, were forwarded for identification from the Institute of Medical and Veterinary Science, Adelaide. The parasites were obtained from *Canis familiaris dingo* from Central Australia and have been recorded as *Oncicola* sp. by Banks (1952) in a list of parasites from the Northern Territory. Some descriptive details are given in the present paper.

Description.—The length of the trunk of the females is 10-14 mm. and the maximum width in the anterior third of the animal is 1·2 mm. The body tapers gradually towards the posterior extremity which is curved dorsally to some extent. The trunk of the only male is 5 mm. long and stouter than the females. The introvert (belonging to a female) is rounded or globular, 0·55 mm. long and with a maximum width of 0·5 mm. At the base it is about 0·4 mm. wide. It is armed with 6 spiral rows each of 6 hooks. The anterior hooks are largest and strongest and possess anteriorly directed rooting processes. The testes lie side by side and the cement glands are pressed closely together into a compact mass. Ellipsoidal-shaped eggs, with a slightly irregular-shaped outer membrane, are present in the body cavity of two specimens; they measure (97-105) μ × (55-60) μ.

Systematic Position.—Several species of acanthocephala have been reported from *Canidae* in other parts of the world: (1) *Oncicola canis* (Kaupp) from *Canis familiaris* from N. and S. America (summarized by Filho, 1940) and from *Canis latrans texensis* (Price, 1928); (2) *Oncicola* sp. from "native dog," Philippine Is. by Tubangui (1933); (3) *Pachysentis canicola* Meyer from *Canis* sp., Brazil (Meyer, 1932); (4) *Pachysentis procumbens* Meyer from *Canis vulpecula*, Egypt (Meyer, 1932); (5) *Pachysentis ehrenbergi* Meyer from *Canis vulpecula*, Egypt (Meyer, 1932); (6) *Echinopardalis atrata* Meyer from *Canis vulpecula*, Egypt (Meyer, 1932); and (7) *?Echinorhynchus pachyacanthus* Sonsino from *Canis aureus*, Egypt (Meyer, 1932); and (8) *Macracanthorhynchus catulinus* Kostylew from *Canis familiaris*, Turkestan (Meyer, 1932). Of all these species the specimens from the dingo resemble most *Oncicola* sp., as described by Wittenberg (1938). Consequently, they have been assigned for the time to the genus, *Oncicola*.

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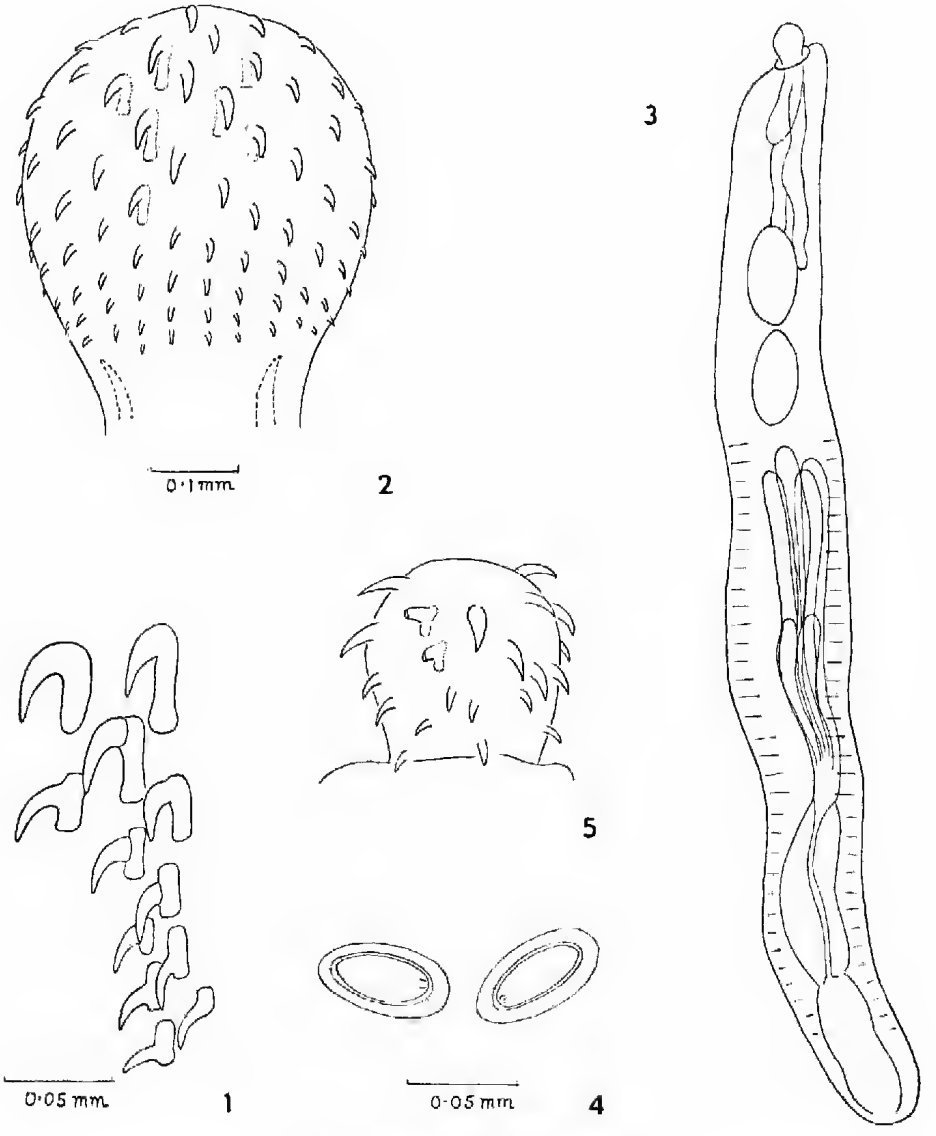

Fig. 5.—*Oncicola* sp. Introvert.

Figs. 1-4.—*Pseudoporrorchis hydromuris*. 1. Hooks from introvert. 2. Introvert. 3. Male. 4. Eggs.